

ABSTRACT

A novel solenoid assembly is shown to include a solenoid having an armature and a delay member. The delay member delays movement of the armature from a first position to a second position until some desired condition occurs, for example, until a desired period of time has passed, until the solenoid is capable of generating a desired amount of force or until the current applied to the solenoid reaches a desired level. In a preferred embodiment, the delay member is a spring positioned to bias the armature against movement until the desired condition has occurred. In such an embodiment, the spring may be positioned to exert force against a shoulder formed on the armature. It is also preferred for the solenoid assembly to include a spacer, positioned between the solenoid and the mechanism being controlled by the solenoid. The spacer serves to space the armature from the mechanism when the armature is in the first position. In a further embodiment, the solenoid assembly further includes an extension member attached to the armature. In a still further embodiment of the invention, a body having a mass is attached to the armature for movement with the armature. In another embodiment, a method is provided for activating the mechanism including delaying the movement of the armature from the first position to the second position until such time as the armature force is greater than the maximum force necessary to activate the mechanism.